



## SEQUENCE LISTING

<110> MIYAWAKI, ATSUSHI  
KARASAWA, SATOSHI

<120> CHROMOPROTEIN

<130> P26359

<140> 10/516,317

<141> 2004-12-10

<150> PCT/JP03/07336

<151> 2003-06-10

<150> JP 2002-168583

<151> 2002-06-10

<160> 22

<170> PatentIn version 3.3

<210> 1

<211> 232

<212> PRT

<213> Cnidopus japonicus

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Lys	Pro	Tyr	Glu	Gly	Thr	Gln	Met	Glu	Asn	Ile	Lys	Val	Thr	Lys	Gly
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Gly	Ser	Val	Ala	Ile	Thr	Lys	Tyr	Thr	Ser	Gly	Ile	Pro	Asp	Tyr	Phe
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Lys	Gln	Ser	Phe	Pro	Glu	Gly	Phe	Thr	Trp	Glu	Arg	Thr	Thr	Ile	Tyr
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Glu	Asp	Gly	Ala	Tyr	Leu	Thr	Thr	Gln	Gln	Glu	Thr	Lys	Leu	Asp	Gly
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145					150					155					160

Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
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Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
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His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
                                   195                                  200                                  205

Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
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Cys Pro Ser Lys Leu Gly His Asn  
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ggc aca gtc aac aat cat cac ttc atg tgc gaa gct gaa gga gag ggc 96  
 Gly Thr Val Asn Asn His His Phe Met Cys Glu Ala Glu Gly Glu Gly  
                                   20                                  25                                  30

aag cca tac gag gga act caa atg gag aac ata aaa gtc acc aaa gga 144  
 Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
                                   35                                  40                                  45

ggc cct ctg ccg ttc tct ttt gat atc ttg acg cct aac tgc caa tat 192  
 Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Tyr  
   50                                  55                                  60

gga agc gta gcc ata acc aag tat aca tca ggg att cca gac tac ttt 240  
 Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
   65                                  70                                  75                                  80

aag caa tct ttt cct gaa gga ttt acc tgg gaa aga acc aca atc tac 288  
 Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
                                   85                                  90                                  95

gaa gat ggg gct tac ctt aca act caa caa gaa acc aaa ctt gat gga 336  
 Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
                                   100                                  105                                  110

aat tgc ctc gtc tac aat att aaa atc ctt gga tgt aat ttt ccc ccc 384  
 Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
   115                                  120                                  125

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aat ggt cct gtg atg cag aag aaa acc caa ggc tgg gaa ccc tgt tgc 432
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130 135 140

gag atg cgc tat aca cgt gat ggt gtg cta tgt ggc caa aca tta atg 480
Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met
145 150 155 160

gca ctt aaa tgc gcc gat ggg aac cac ctc act tgc cat ctg aga act 528
Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr
165 170 175

act tac agg tcc aaa aag gca gca aag gcg ttg cag atg cca ccc ttc 576
Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe
180 185 190

cat ttt tca gac cat cgt cct gaa ata gtg aag gtt tca gag aac ggc 624
His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly
195 200 205

aca cta ttt gaa cag cac gaa agt tca gtg gcc agg tac tgt caa aca 672
Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr
210 215 220

tgc cca tct aaa ctt ggt cac aat taa 699
Cys Pro Ser Lys Leu Gly His Asn
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 <223> Description of Artificial Sequence: Synthetic  
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<212> PRT

<213> Cnidopus japonicus

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20 25 30

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35 40 45

Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Leu  
50 55 60

Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
65 70 75 80

Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
85 90 95

Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
100 105 110

Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
115 120 125

Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
130 135 140

Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
145 150 155 160

Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
165 170 175

Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
180 185 190

His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
195 200 205

Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
210 215 220

Cys Pro Ser Lys Leu Gly His Asn  
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<220>  
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 <222> (1)..(696)

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20 25 30	
aag cca tac gag gga act caa atg gag aac ata aaa gtc acc aaa gga	144
Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly	
35 40 45	
ggc cct ctg ccg ttc tct ttt gat atc ttg acg cct aac tgc caa ctt	192
Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Leu	
50 55 60	
gga agc gta gcc ata acc aag tat aca tca ggg att cca gac tac ttt	240
Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe	
65 70 75 80	
aag caa tct ttt cct gaa gga ttt acc tgg gaa aga acc aca atc tac	288
Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr	
85 90 95	
gaa gat ggg gct tac ctt aca act caa caa gaa acc aaa ctt gat gga	336
Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly	
100 105 110	
aat tgc ctc gtc tac aat att aaa atc ctt gga tgt aat ttt ccc ccc	384
Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro	
115 120 125	
aat ggt cct gtg atg cag aag aaa acc caa ggc tgg gaa ccc tgt tgc	432
Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys	
130 135 140	
gag atg cgc tat aca cgt gat ggt gtg cta tgt ggc caa aca tta atg	480
Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met	
145 150 155 160	
gca ctt aaa tgc gcc gat ggg aac cac ctc act tgc cat ctg aga act	528
Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr	
165 170 175	

act tac agg tcc aaa aag gca gca aag gcg ttg cag atg cca ccc ttc 576  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
                   180                                  185                                  190

cat ttt tca gac cat cgt cct gaa ata gtg aag gtt tca gag aac ggc 624  
 His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
                   195                                  200                                  205

aca cta ttt gaa cag cac gaa agt tca gtg gcc agg tac tgt caa aca 672  
 Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
                   210                                  215                                  220

tgc cca tct aaa ctt ggt cac aat taa 699  
 Cys Pro Ser Lys Leu Gly His Asn  
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<213> Cnidopus japonicus

<400> 13

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                   20                                  25                                  30

Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
                   35                                  40                                  45

Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Met  
           50                                  55                                  60

Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
           65                                  70                                  75                                  80

Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
                   85                                  90                                  95

Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
                   100                                  105                                  110

Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
           115                                  120                                  125

Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
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Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
           145                                  150                                  155                                  160

Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
                   165                                  170                                  175

Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
                   180                                  185                                  190



His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
 195 200 205

Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
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Cys Pro Ser Lys Leu Gly His Asn  
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<210> 14

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<212> DNA

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ggc aca gtc aac aat cat cac ttc atg tgc gaa gct gaa gga gag ggc 96  
 Gly Thr Val Asn Asn His His Phe Met Cys Glu Ala Glu Gly Glu Gly  
 20 25 30

aag cca tac gag gga act caa atg gag aac ata aaa gtc acc aaa gga 144  
 Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
 35 40 45

ggc cct ctg ccg ttc tct ttt gat atc ttg acg cct aac tgc caa atg 192  
 Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Met  
 50 55 60

gga agc gta gcc ata acc aag tat aca tca ggg att cca gac tac ttt 240  
 Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
 65 70 75 80

aag caa tct ttt cct gaa gga ttt acc tgg gaa aga acc aca atc tac 288  
 Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
 85 90 95

gaa gat ggg gct tac ctt aca act caa caa gaa acc aaa ctt gat gga 336  
 Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
 100 105 110

aat tgc ctg gtc tac aat att aaa atc ctt gga tgt aat ttt ccc ccc 384  
 Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
 115 120 125

aat ggt cct gtg atg cag aag aaa acc caa ggc tgg gaa ccc tgt tgc 432  
 Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
 130 135 140

gag atg cgc tat aca cgt gat ggt gtg cta tgt ggc caa aca tta atg 480  
 Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
 145 150 155 160

gca ctt aaa tgc gcc gat ggg aac cac ctc act tgc cat ctg aga act 528  
 Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
 165 170 175

act tac agg tcc aaa aag gca gca aag gcg ttg cag atg cca ccc ttc 576  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
 180 185 190

cat ttt tca gac cat cgt cct gaa ata gtg aag gtt tca gag aac ggc 624  
 His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
 195 200 205

aca cta ttt gaa cag cac gaa agt tca gtg gcc agg tac tgt caa aca 672  
 Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
 210 215 220

tgc cca tct aaa ctt ggt cac aat taa 699  
 Cys Pro Ser Lys Leu Gly His Asn  
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<213> Cnidopus japonicus

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 35 40 45

Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Tyr  
 50 55 60

Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Gly  
 65 70 75 80

Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
 85 90 95

Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
 100 105 110

Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
 115 120 125

Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
 130 135 140

Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
 145 150 155 160  
 Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
 165 170 175  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
 180 185 190  
 His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
 195 200 205  
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 210 215 220  
 Cys Pro Ser Lys Leu Gly His Asn  
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 ggc aca gtc aac aat cat cac ttc atg tgc gaa gct gaa gga gag ggc 96  
 Gly Thr Val Asn Asn His His Phe Met Cys Glu Ala Glu Gly Glu Gly  
 20 25 30  
 aag cca tac gag gga act caa atg ctt aac ata aaa gtc acc aaa gga 144  
 Lys Pro Tyr Glu Gly Thr Gln Met Leu Asn Ile Lys Val Thr Lys Gly  
 35 40 45  
 ggc cct ctg ccg ttc tct ttt gat atc ttg acg cct aac tgc caa tat 192  
 Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Tyr  
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 Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Gly  
 65 70 75 80  
 aag caa tct ttt cct gaa gga ttt acc tgg gaa aga acc aca atc tac 288  
 Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
 85 90 95  
 gaa gat ggg gct tac ctt aca act caa caa gaa acc aaa ctt gat gga 336  
 Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
 100 105 110

aat tgc ctc gtc tac aat att aaa atc ctt gga tgt aat ttt ccc ccc 384  
 Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
 115 120 125  
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 130 135 140  
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 Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
 145 150 155 160  
 gca ctt aaa tgc gcc gat ggg aac cac ctc act tgc cat ctg aga act 528  
 Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
 165 170 175  
 act tac agg tcc aaa aag gca gca aag gcg ttg cag atg cca ccc ttc 576  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
 180 185 190  
 cat ttt tca gac cat cgt cct gaa ata gtg aag gtt tca gag aac ggc 624  
 His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
 195 200 205  
 aca cta ttt gaa cag cac gaa agt tca gtg gcc agg tac tgt caa aca 672  
 Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
 210 215 220  
 tgc cca tct aaa ctt ggt cac aat taa 699  
 Cys Pro Ser Lys Leu Gly His Asn  
 225 230

<210> 17  
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 35 40 45  
 Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Phe  
 50 55 60  
 Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
 65 70 75 80  
 Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
 85 90 95

Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
 100 105 110  
 Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
 115 120 125  
 Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
 130 135 140  
 Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
 145 150 155 160  
 Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
 165 170 175  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
 180 185 190  
 His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
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 Cys Pro Ser Lys Leu Gly His Asn  
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<210> 18  
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 Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
 35 40 45  
 ggc cct ctg ccg ttc tct ttt gat atc ttg acg cct aac tgc caa ttt 192  
 Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Phe  
 50 55 60  
 gga agc gta gcc ata acc aag tat aca tca ggg att cca gac tac ttt 240  
 Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
 65 70 75 80

aag caa tct ttt cct gaa gga ttt acc tgg gaa aga acc aca atc tac 288  
Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
85 90 95  
  
gaa gat ggg gct tac ctt aca act caa caa gaa acc aaa ctt gat gga 336  
Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
100 105 110  
  
aat tgc ctc gtc tac aat att aaa atc ctt gga tgt aat ttt ccc ccc 384  
Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
115 120 125  
  
aat ggt cct gtg atg cag aag aaa acc caa ggc tgg gaa ccc tgt tgc 432  
Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
130 135 140  
  
gag atg cgc tat aca cgt gat ggt gtg cta tgt ggc caa aca tta atg 480  
Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
145 150 155 160  
  
gca ctt aaa tgc gcc gat ggg aac cac ctc act tgc cat ctg aga act 528  
Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
165 170 175  
  
act tac agg tcc aaa aag gca gca aag gcg ttg cag atg cca ccc ttc 576  
Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
180 185 190  
  
cat ttt tca gac cat cgt cct gaa ata gtg aag gtt tca gag aac ggc 624  
His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
195 200 205  
  
aca cta ttt gaa cag cac gaa agt tca gtg gcc agg tac tgt caa aca 672  
Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
210 215 220  
  
tgc cca tct aaa ctt ggt cac aat taa 699  
Cys Pro Ser Lys Leu Gly His Asn  
225 230

&lt;210&gt; 19

&lt;211&gt; 232

&lt;212&gt; PRT

&lt;213&gt; Cnidopus japonicus

&lt;400&gt; 19

Met Ala Ser Lys Ile Ser Asp Asn Val Arg Ile Lys Leu Tyr Met Glu  
1 5 10 15

Gly Thr Val Asn Asn His His Phe Met Cys Glu Ala Glu Gly Glu Gly  
20 25 30

Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
35 40 45

Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln His  
50 55 60

Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
 65 70 75 80  
 Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
 85 90 95  
 Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
 100 105 110  
 Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
 115 120 125  
 Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Cys Cys  
 130 135 140  
 Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
 145 150 155 160  
 Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
 165 170 175  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
 180 185 190  
 His Phe Ser Asp His Arg Pro Glu Ile Val Lys Val Ser Glu Asn Gly  
 195 200 205  
 Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
 210 215 220  
 Cys Pro Ser Lys Leu Gly His Asn  
 225 230

<210> 20  
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 <212> DNA  
 <213> Cnidopus japonicus

<220>  
 <221> CDS  
 <222> (1)..(696)

<400> 20  
 atg gct tcc aaa atc agc gac aat gta cgt atc aag tta tat atg gag 48  
 Met Ala Ser Lys Ile Ser Asp Asn Val Arg Ile Lys Leu Tyr Met Glu  
 1 5 10 15  
 ggc aca gtc aac aat cat cac ttc atg tgc gaa gct gaa gga gag ggc 96  
 Gly Thr Val Asn Asn His His Phe Met Cys Glu Ala Glu Gly Glu Gly  
 20 25 30  
 aag cca tac gag gga act caa atg gag aac ata aaa gtc acc aaa gga 144  
 Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
 35 40 45

699

5



Gly Thr Val Asn Asn His His Phe Met Val Glu Ala Glu Gly Glu Gly  
                   20                                  25                                  30  
 Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly  
                   35                                  40                                  45  
 Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Tyr  
                   50                                  55                                  60  
 Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe  
                   65                                  70                                  75                                  80  
 Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr  
                                   85                                  90                                  95  
 Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly  
                   100                                  105                                  110  
 Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro  
                   115                                  120                                  125  
 Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Ser Cys  
                   130                                  135                                  140  
 Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met  
                   145                                  150                                  155                                  160  
 Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr  
                                   165                                  170                                  175  
 Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe  
                   180                                  185                                  190  
 His Phe Ser Asp His Arg Leu Glu Ile Val Lys Val Ser Glu Asn Gly  
                   195                                  200                                  205  
 Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr  
                   210                                  215                                  220  
 Cys Pro Ser Lys Leu Gly His Asn  
                   225                                  230

&lt;210&gt; 22

&lt;211&gt; 699

&lt;212&gt; DNA

&lt;213&gt; Cnidopus japonicus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(696)

&lt;400&gt; 22

atg gct tcc aaa atc agc gac aat gta cgt atc aag tta tat atg gag 48  
 Met Ala Ser Lys Ile Ser Asp Asn Val Arg Ile Lys Leu Tyr Met Glu  
           1                                  5                                  10                                  15

ggc aca gtc aac aat cat cac ttc atg gtc gaa gct gaa gga gag ggc	96
Gly Thr Val Asn Asn His His Phe Met Val Glu Ala Glu Gly Glu Gly	
20 25 30	
aag cca tac gag gga act caa atg gag aac ata aaa gtc acc aaa gga	144
Lys Pro Tyr Glu Gly Thr Gln Met Glu Asn Ile Lys Val Thr Lys Gly	
35 40 45	
ggc cct ctg ccg ttc tct ttt gat atc ttg acg cct aac tgc caa tat	192
Gly Pro Leu Pro Phe Ser Phe Asp Ile Leu Thr Pro Asn Cys Gln Tyr	
50 55 60	
gga agc gta gcc ata acc aag tat aca tca ggg att cca gac tac ttt	240
Gly Ser Val Ala Ile Thr Lys Tyr Thr Ser Gly Ile Pro Asp Tyr Phe	
65 70 75 80	
aag caa tct ttt cct gaa gga ttt acc tgg gaa aga acc aca atc tac	288
Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Thr Thr Ile Tyr	
85 90 95	
gaa gat ggg gct tac ctt aca act caa caa gaa acc aaa ctt gat gga	336
Glu Asp Gly Ala Tyr Leu Thr Thr Gln Gln Glu Thr Lys Leu Asp Gly	
100 105 110	
aat tgc ctc gtc tac aat att aaa atc ctt gga tgt aat ttt ccc ccc	384
Asn Cys Leu Val Tyr Asn Ile Lys Ile Leu Gly Cys Asn Phe Pro Pro	
115 120 125	
aat ggt cct gtg atg cag aag aaa acc caa ggc tgg gaa ccc agt tgc	432
Asn Gly Pro Val Met Gln Lys Lys Thr Gln Gly Trp Glu Pro Ser Cys	
130 135 140	
gag atg cgc tat aca cgt gat ggt gtg cta tgt ggc caa aca tta atg	480
Glu Met Arg Tyr Thr Arg Asp Gly Val Leu Cys Gly Gln Thr Leu Met	
145 150 155 160	
gca ctt aaa tgc gcc gat ggg aac cac ctc act tgc cat ctg aga act	528
Ala Leu Lys Cys Ala Asp Gly Asn His Leu Thr Cys His Leu Arg Thr	
165 170 175	
act tac agg tcc aaa aag gca gca aag gcg ttg cag atg cca ccc ttc	576
Thr Tyr Arg Ser Lys Lys Ala Ala Lys Ala Leu Gln Met Pro Pro Phe	
180 185 190	
cat ttt tca gac cat cgt ctt gaa ata gtg aag gtt tca gag aac ggc	624
His Phe Ser Asp His Arg Leu Glu Ile Val Lys Val Ser Glu Asn Gly	
195 200 205	
aca cta ttt gaa cag cac gaa agt tca gtg gcc agg tac tgt caa aca	672
Thr Leu Phe Glu Gln His Glu Ser Ser Val Ala Arg Tyr Cys Gln Thr	
210 215 220	
tgc cca tct aaa ctt ggt cac aat taa	699
Cys Pro Ser Lys Leu Gly His Asn	
225 230	